

II. AMENDMENTS TO THE DRAWINGS:

The attached three sheets of drawings include changes to Figures 1, 2, 3 and 4. These three sheets, which includes Figures 1, 2, 3, 4, 5, 6, 7 and 13, replaces the original corresponding sheets that included Figures 1, 2, 3, 4, 5, 6, 7 and 13. By the present amendment, Figures 1, 2, 3 and 4 have been labeled as “PRIOR ART” in accordance with MPEP § 608.02(g).

Attachment: Three Replacement Sheets
 Three Annotated Sheet Showing Changes

IV. REMARKS

The drawings have been further amended to label Figures 1 to 4 as “PRIOR ART.”

Claims 14, 16, 17 and 21 have been amended, and new claims 39 and 40 have been added. Specifically, independent claims 14 and 21 have also been amended to recite “the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively,” which replaces “flush with” with --even or level with-- as supported by previous claims 14 and 21. As shown by RANDOM HOUSE WEBSTER’S COLLEGE DICTIONARY 513 (1991), a copy of which is filed herewith, the word “flush” means “even or level with a surface.” This feature of the invention is described on page 7, lines 17-19, and is shown in Figure 5 of Applicants’ disclosure as originally filed.

Claims 14 and 21 have also been amended to recite “the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over the back surface of the cell” as shown in Figure 5 of Applicants’ disclosure as originally filed. In other words, the “first part” (30a), (34a) and the “second part” (30b), (34b) of the conductive paths (30), (34) are actually separate component parts of the paths as shown in Figure 5. In fact, the “first separate component part” and the “second separate component part” of each path do not directly contact one another as shown in Figures 5, 6 and 7. Instead, “contact means” is “disposed between the first separate component part and the second separate component part of each conductive path” as also shown in Figure 5, and provides an electrical junction between the two component parts.

Claims 14 and 21 have also been amended to recite “wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part” as supported on page 7, lines 28-30, and as shown in Figures 5, 6 and 7 of Applicants’ disclosure as originally filed.

Claims 16 and 17, which depend upon claim 15, have been amended in accordance with the amendment to claim 14.

New claims 39 and 40 depend upon claims 14 and 21, respectively, and further recite “wherein the contact means has a first thickness and the first separate component part and the second separate component part each have a second thickness, wherein the first thickness is thicker than the second thickness” as shown in Figures 5, 6 and 7 of Applicants’ disclosure as originally filed.

The present amendment adds no new matter to the above-captioned application.

Claims 14-40 are pending. Claims 30 and 32 have been withdrawn because they pertain to non-elected subject matter. Applicants respectfully request that claim 32 be rejoined with the base claim once it has been allowed because claim 32 incorporates all of the subject matter of the generic base claim 14.

A. The Invention

The present invention pertains broadly to a display cell such as may be used as a display device for an electronic device. In accordance with an embodiment of the present invention, an electro-optical display cell is provided that includes features recited by independent claim 14. In accordance with another embodiment of the present invention, a multi-layered liquid crystal display cell is provided that includes features recited by independent claim 21. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the display cell embodiments of the present invention is that these devices include conductive paths that are reliably formed and that exhibit good electrical conductivity even in places where they match the back edge of the cell.

B. The Rejections

Claims 14-17, 19, 20, 31, 33, 35 and 37 stand rejected under 35 U.S.C. § 102(b) as anticipated by Atsushi (JP Document No. 56-075,624, hereafter the “Atsushi Document”). Claims 21, 23, 25, 34, 36 and 38 stand rejected under 35 U.S.C. § 102(e) as anticipated by Mandai et al. (U.S. Patent Application Publication No. 2001/0015788, hereafter the “Mandai Publication”).

Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kozuka et al. (U.S. Patent Application Publication No. 2001/0046021, hereafter the “Kozuka Publication”). Claim 22, 24 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kuroki et al. (U.S. Patent Application Publication No. 2002/0051102, hereafter the “Kuroki Publication”). Claim 27 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Kuroki Publication. Claim 28 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Wada (U.S. Patent Application Publication No. 2002/0019069, hereafter the “Wada Publication”). Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Wada Publication.

Applicants respectfully traverse the Examiner’s rejections and request reconsideration of the above-captioned application for the following reasons.

C. Applicants’ Arguments

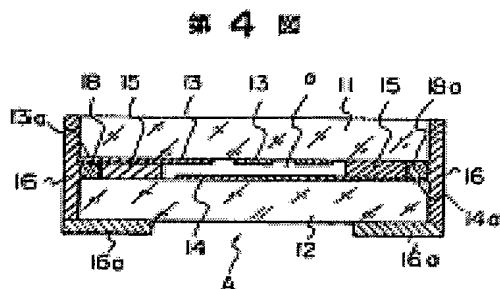
i. The Section 102 Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claims. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has failed to establish a prima facie

case of anticipation against the claimed invention because both the Atsushi Document and the Mandai Publication fail to teach each and every limitation as arranged as in the claims.

ii. The Atsushi Document

The Atsushi Document discloses “production of photoelectric display cell” wherein the photoelectric display cell, as shown in Figure 4 (reproduced below for convenience), includes base plates (11) and (12), sealing material (15) printed and dried on the lower peripheral portion of base plate (11) without applying sealing material to liquid crystal inlet (17), and conductive paste layers (18) and (18a) printed on the opposed portion between the upper portion of lead terminal (13a) of segment electrode (13) and lead wire (14a) of common electrode (14) on the lower base plate (12) so as to have the same thickness as sealing material (15), (See Patent Abstracts of Japan, of record, corresponding to the Atsushi Document). As shown in Figure 4, both base plates (11) and (12) are connected to form cell vessel (A), and conductive paste (16) is printed and dried in the same width as conductive paste layers (18) and (18a) in order to prevent conductive paste layers (18), (18a) and (16) from short circuiting between adjoining layers and defective connection of lead wires (See Patent Abstracts of Japan corresponding to the Atsushi Document).



As would be instantly appreciated by a person of ordinary skill in the art, the conductive paste layers (18) and (18a) disclosed by the Atsushi Document perform substantially different roles than that of the “contact means arranged continuously or

discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path” as recited by independent claims 14 and 21. Specifically, as would be instantly understood by a person of ordinary skill in the art, the conductive paste layers (18) and (18a) are intended to increase the electric contact surface between respective electrodes (13) and (14) and the corresponding conductive paths (16). Thus, conductive paste layers (18) and (18a) do not form an electrical junction between the first and second separate component parts of each conductive path. Furthermore, the conductive paste layers (18) and (18a) are located within the interior of Atsushi’s device and, therefore, do not serve to provide a more reliable electrical connection on an external surface of the cell as evident from Figures 5 to 7, and on page 3, lines 17-20, of Applicants’ disclosure as originally filed.

The Atsushi Document discloses, according to Figure 4, at least one transparent front substrate (11) whose top surface forms the front face of the cell, and at least one back substrate (12) that may also be transparent or not, and whose lower surface forms the back face of the cell. The Atsushi Document also discloses that a sealing frame (15) is provided to join the front and back plates (11), (12) and that defines a volume for retaining an electro-optically or photo-electrically active medium in a sealed manner (i.e., liquid crystal (A)). The Atsushi Document discloses that the front and back substrates (11) and (12) include on their faces, opposing each other, at least one electrode (13), (14) that are intended to be connected by the conductive paste (16) to an electrical power or control circuit and that define lateral electric contact zones. The Atsushi Document discloses that each conductive path (16) is formed of a first part (i.e., see “16” in Figure 4) in contact with the electrodes at the level of the lateral electric contact zones, and a second part (i.e., see “16a” in Figure 4) shown extending over the back surface of the cell.

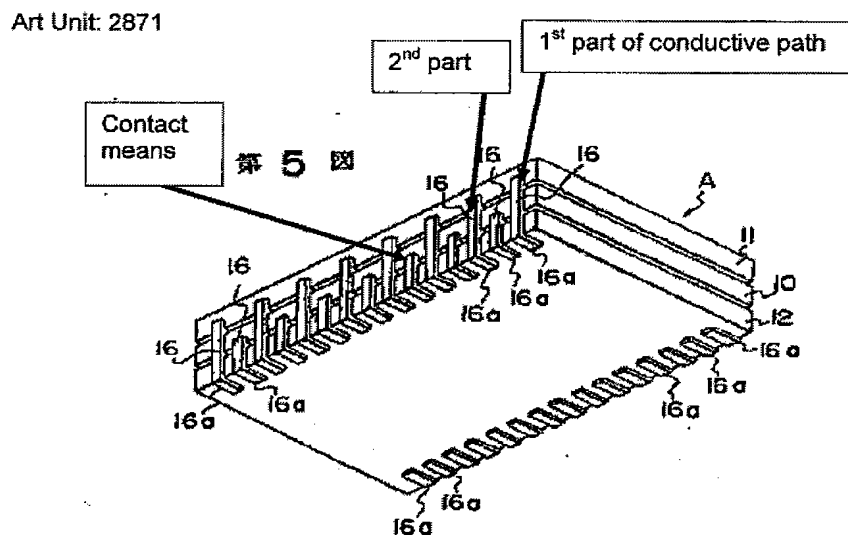
However, the Atsushi Document does not teach, or suggest, that the conductive paste layers (18a) shown in Figure 4 are arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of the cell thereby forming the electrical junction **between** the first and second parts of the conductive paths. Thus, the Atsushi Document does not teach, or even suggest, (i) “**contact means** arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby **forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path**” as recited by independent claims 14 and 21.

On the contrary, the Atsushi Document discloses that “contact means” (18a), as shown in Figure 4, are disposed **between** the front and back base plates (11) and (12). The present invention, as recited by independent claims 14 and 21, requires that the “contact means” be arranged over the edge and/or the lower surface of the back substrate forming the back face of the cell. For a non-limiting example, Applicants direct the Examiner’s attention to Figure 5 of Applicants’ disclosure, which illustrates a “contact means” (42) arranged on the “edge” (27) and/or lower surface (31) of the back substrate (22) forming the back face of the cell (18), and between the “first separate component part” and the “second separate component part.”

The “contact means” (18a) of Atsushi does not form “an electrical junction **disposed between the first separate component part and the second separate component part of each conductive path**” as recited by claims 14 and 21. For example, assuming *arguendo* that element (16) may be construed as a “first separate component part” and element (16a) may be construed as the “second separate component part” (which is not a valid assumption), then it is plainly evident from Figure 4 of the Atsushi Document that there is no “contact means” disposed between the “first part” (16) and the “second part” (16a).

A person of ordinary skill in the art would also understand from the disclosure of the Atsushi Document that the cell disclosed by Atsushi has the disadvantage described on page 3, lines 9-16, of Applicants' specification. Specifically, the first part (16) and second part (16a) of the conductive paths deposited around the sharp back edge of the cell are thin, and therefore have low mechanical strength. As a consequence of this thin structure deposited around the sharp back edge, the conductive paths are easily scratched and interrupted thereby compromising electrical conduction continuity and reliability.

The Examiner erroneously contends that, as allegedly shown in the Figure on page 4 of the Office Action of December 5, 2008, one element (16) may be construed as a "first part" and another different element (16) may be construed as a "second part" wherein the "contact means" is construed as yet another shorter element (16) disposed between the two other elements (16). For convenience, the Examiner's Figure is reproduced below.



Examiner's Figure from Page 4 of December 5, 2008 Office Action

The Examiner's contention is erroneous because the Atsushi Document does not teach, or suggest, that adjacent elements (16) shown in the Figure on page 4 of the December 5th Office Action are electrically connected to one another to form a "conductive path," and the Atsushi Document does not teach, or suggest, that the element (16) identified by the

Examiner as a “contact means” provides an electrical junction that (ii) “provides direct conductive continuity between the first separate component part and the second separate component part” as recited by independent claims 14 and 21. On the contrary, because the three elements (16) do not directly contact one another, the “contact means” (16) allegedly disclosed by the Atsushi Document cannot provide “direct conductive continuity between the first separate component part and the second separate component part” as claimed.

The Examiner is reminded of the obligation to give a fair reading to what a reference teaches as a whole. In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). In this case, the Examiner contends that element (16) of Atsushi is a “first part” of a conductive path, and that another element (16) forms a “second part” of the same conductive path, and that yet a third element (16) forms the “contact means” that forms an electrical junction between the other two elements (16). This is not a fair reading of what the Atsushi Document teaches as a whole because Atsushi does not reasonably teach that one element (16) forms the electrical junction directly connecting two other elements (16).

The Atsushi Document also does not teach, or suggest, (iii) that “the electric junction provides direct conductive continuity between the first separate component part and the second separate component part” as recited by claims 14 and 21. Assuming *arguendo* that three elements (16) shown by the Examiner’s sketch on page 4 of the December 5, 2008 Office Action may be construed to be “the first separate component part,” “the second separate component part” and the “contact means” (which is an invalid assumption), the “electric junction” provided by the “contact means” (16) does not reasonably provide “direct conductive continuity between the first separate component part and the second component part” as shown in Figures 5, 6 and 7 of Applicants’ disclosure.

The Atsushi Document also does not teach, or suggest, (iv) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, and (v) “the back

substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36. As shown in Figure 4 of the Atsushi Document, the conductive paste layer (18a) is disposed in the interior of the cell and the conductive paste layer (18a) is disposed between the front and back base plates (11) and (12).

The Atsushi Document also does not teach, or suggest, (v) “the contact means has a first thickness and the first separate component part and the second separate component part each have a second thickness, wherein the first thickness is thicker than the second thickness” as recited by new claims 39 and 40.

For all of the above reasons, the Atsushi Document cannot anticipate the subject matter of independent claims 14 and 21, or the subject matter of new claims 39 and 40.

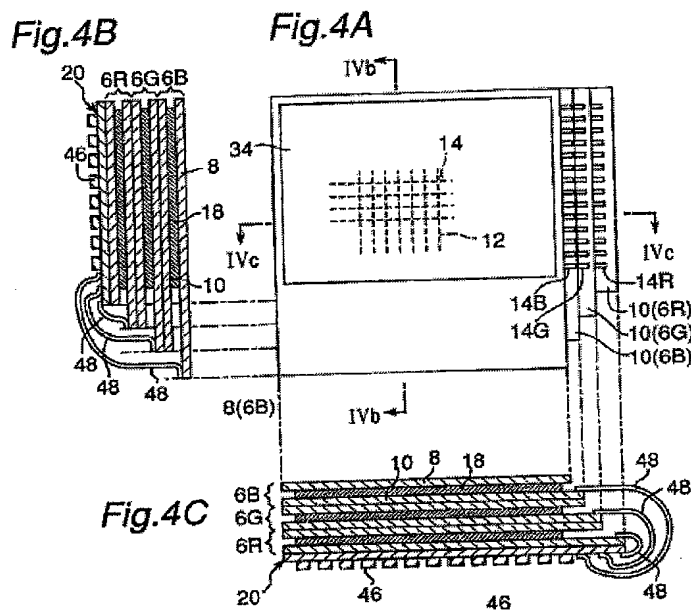
iii. The Mandai Publication

The Mandai Publication discloses a “displaying system for displaying information on a display,” which pertains to a liquid crystal display that includes first and second substrates (8), (10) wherein the first substrate (8) has a surface supporting thereon a plurality of parallel first electrodes (12) and the second substrate (10) has a first surface and second surface opposed to the first surface (See Abstract of the Mandai Publication, and Figures 1 and 2). The Mandai Publication discloses that the first surface supports thereon a plurality of parallel second electrodes (14), wherein the second substrate (10) is positioned so that the first surface opposes the surface of the first substrate to define a gap therebetween and the first and second electrodes cross with each other (See Abstract of the Mandai Publication, and Figure 2). The Mandai Publication further discloses that a memory type liquid crystal (18) is filled in the gap as shown in Figure 4B, and a plurality of first and second terminals are positioned on the second surface and electrically connected with the first and second

electrodes, respectively, so that the first and second terminals are capable of being connected with an external device (See Abstract of the Mandai Publication and ¶ [0052]).

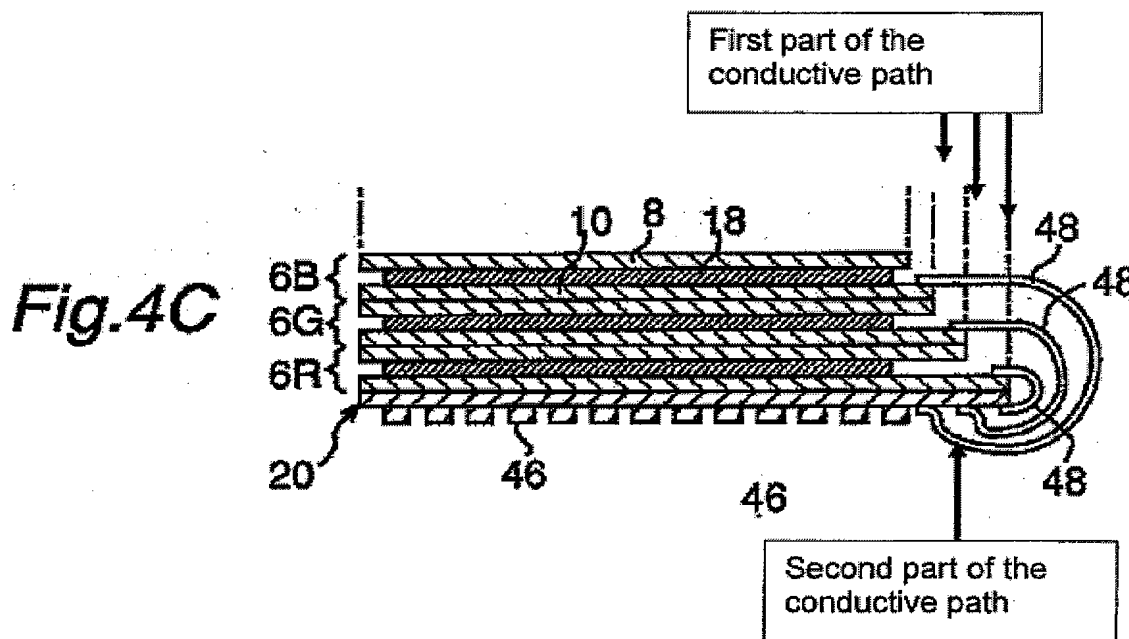
With reference to Figures 4B and 4C of the Mandai Publication, which are reproduced below for the Examiner's convenience, a person of ordinary skill in the art would instantly appreciate that the structure the Examiner contends is the "first part of the conductive path" and the structure the Examiner contends is the "second part of the conductive path" (See, Office Action, dated November 15, 2007, at 6) are integrally formed (i.e., are the same component) so that there is no (i) "contact means...forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21. However, this is not the only deficiency in the disclosure of the Mandai Publication.

The Mandai Publication also does not teach, or even suggest, "contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path" as recited by independent claims 14 and 21. Because the Mandai



Publication does not teach, or suggest, any sort of “contact means” whatsoever, it also cannot teach, or suggest, (ii) “the electric junction provides direct conductive continuity between the first separate component part and the second separate component part” as recited by claims 14 and 21.

Again, Applicants remind the Examiner of the obligation to give a fair reading to what a reference teaches as a whole. In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner erroneously contends that, as allegedly shown in the Figure on page 7 of the Office Action of December 5, 2008, one element (48) disclosed by Mandai may be construed as a “first part” and another different element (48) may be construed as a “second part” wherein the “contact means” is yet another element (48) disposed between the two other elements (48). For convenience, the Examiner’s Figure is reproduced below.



Examiner’s Figure from Page 7 of December 5, 2008 Office Action

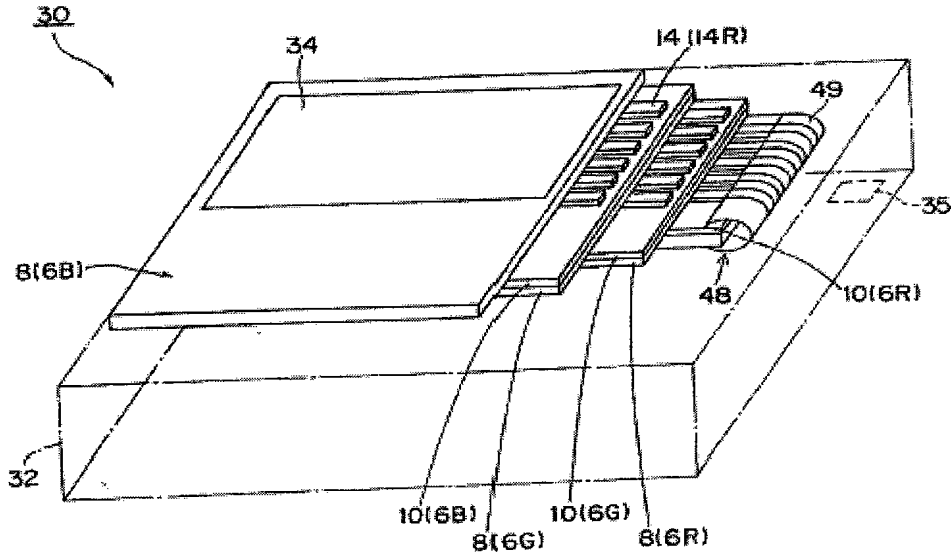
As an initial matter, the Examiner has not shown in the Figure on page 7 of the December 5th Office Action exactly what element (48) is allegedly equivalent to Applicants’

“contact means.” Therefore, Applicants object to the Examiner’s contention on the basis that it is vague and ambiguous.

The Examiner’s contention is further erroneous because the Mandai Publication does not teach, or suggest, that the three elements (48) shown in the Figure on page 7 of the December 5th Office Action are electrically connected to one another to form a “conductive path,” and the Mandai Publication does not teach, or suggest, that the element (48) identified by the Examiner as a “contact means” provides an electrical junction that (iii) “provides direct conductive continuity between the first separate component part and the second separate component part” as recited by independent claims 14 and 21. On the contrary, because the three elements (48) do not directly contact one another, the “contact means” (48) allegedly disclosed by the Mandai Publication cannot provide “direct conductive continuity between the first separate component part and the second separate component part” as claimed.

In addition, the Mandai Publication does not teach, or suggest, (iv) “the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate respectively, and define lateral electric contact zones” as recited by claims 14 and 21. As evident from Figures 3 (reproduced below for the Examiner’s convenience) and 4A (reproduced above for the Examiner’s convenience) of the Mandai Publication, the electrodes (12), (14) are not even or level with an edge of the substrates (8) and (10).

Fig. 3



Thus, while the previous term “flush” may mean “immediately adjacent” (See, e.g., RANDOM HOUSE WEBSTER’S COLLEGE DICTIONARY 513 (1991)), claims 14 and 21 presently recite that “the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate respectively,” which is not the same thing as “immediately adjacent.” Therefore, it is moot whether the electrodes (12), (14) disclosed by Mandai Publication are immediately adjacent with the edge of the substrates (8), (10) because the claimed invention requires that the electrodes be “even or level with” an edge surface of the front substrate and the back substrate. As would be immediately realized by a person of ordinary skill in the art, the electrodes (12), (14) disclosed by the Mandai Publication are not “even or level with” an edge surface of the substrates (8), (10).

The Mandai Publication also does not teach, or suggest, (v) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, and (vi) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36. The Mandai Publication also does not teach, or suggest, (vii) “the contact means has a first thickness and the first separate component part and the second

separate component part have a second thickness, wherein the first thickness is thicker than the second thickness” as recited by new claims 39 and 40.

For all of the above reasons, the Mandai Publication cannot anticipate the subject matter of independent claims 14 and 21, or the subject matter of new claims 39 and 40.

iv. The Section 103 Rejections

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against the claimed invention because neither the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, nor the Wada Publication, either alone or in combination, teaches or suggests (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path” as recited by independent claims 14 and 21, (ii) “contact means...forming an electrical junction...wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part” as recited by claims 14 and 21, (iii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, (iv) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36, (v) “the contact means is disposed on a side of the cell” as recited by claims 37 and 38, and (vi) “the contact means has a first thickness and the first separate component part and the second separate component part have

a second thickness, wherein the first thickness is thicker than the second thickness” as recited by new claims 39 and 40.

v. The Atsushi Document

The disclosure of the Atsushi Document is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 7, lines 14-15; at 8, lines 6-7; and at 9, lines 10-12), the Atsushi Document does not teach, or suggest, (i) “the contact means take the form of a tape of anisotropic conductive material” as recited by claim 18; (ii) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claims 22, 24, 26 and 27; and (iii) “a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claims 29 and 30.

vi. The Mandai Publication

The disclosure of the Mandai Publication is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 8, lines 17-18; and at 10, lines 2-4), the Mandai Publication does not teach, or suggest, (i) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claim 27; and (ii) “a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claim 29.

vii. The Kozuka Publication

The Kozuka Publication discloses a “conductive particle to conductively bond conductive members to each other, an anisotropic adhesive containing the conductive particle, a liquid crystal display device using the anisotropic conductive adhesive, [and] a

method for manufacturing the liquid crystal display device” (See Abstract of the Kozuka Publication).

viii. The Kuroki Publication

The Kuroki Publication discloses a “display device, manufacturing method thereof and image terminal unit employing the same” (See Abstract of the Kuroki Publication).

ix. The Wada Publication

The Wada Publication discloses an “optical element and method of manufacturing the same, and electronic instrument” (See Abstract of the Wada Publication).

x. Summary of the Disclosures

The Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path” as recited by independent claims 14 and 21, (ii) “contact means...forming an electrical junction...wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part” as recited by claims 14 and 21, (iii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, (iv) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36, (v) “the contact means is disposed on a side of the cell” as recited by claims 37 and 38, and (vi) “the contact means has a first thickness and the first separate component part and the second separate component part

have a second thickness, wherein the first thickness is thicker than the second thickness” as recited by new claims 39 and 40.

For all of the above reasons, the Examiner has failed to establish a prima facie case of obviousness against the subject matter of independent claims 14 and 21 and the dependent claims.

V. CONCLUSION

The Examiner has failed to establish either a prima facie case of anticipation, or of obviousness, against claims 14-29 and 31-40 because the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, each and every limitation of the claims arranged as in the claims.

For all of the above reasons, claims 14-29 and 31-40 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Furthermore, while claim 32 pertains to subject matter of a non-elected species, claim 32 should be rejoined with generic claim 14.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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Fig. 1

PRIOR ART

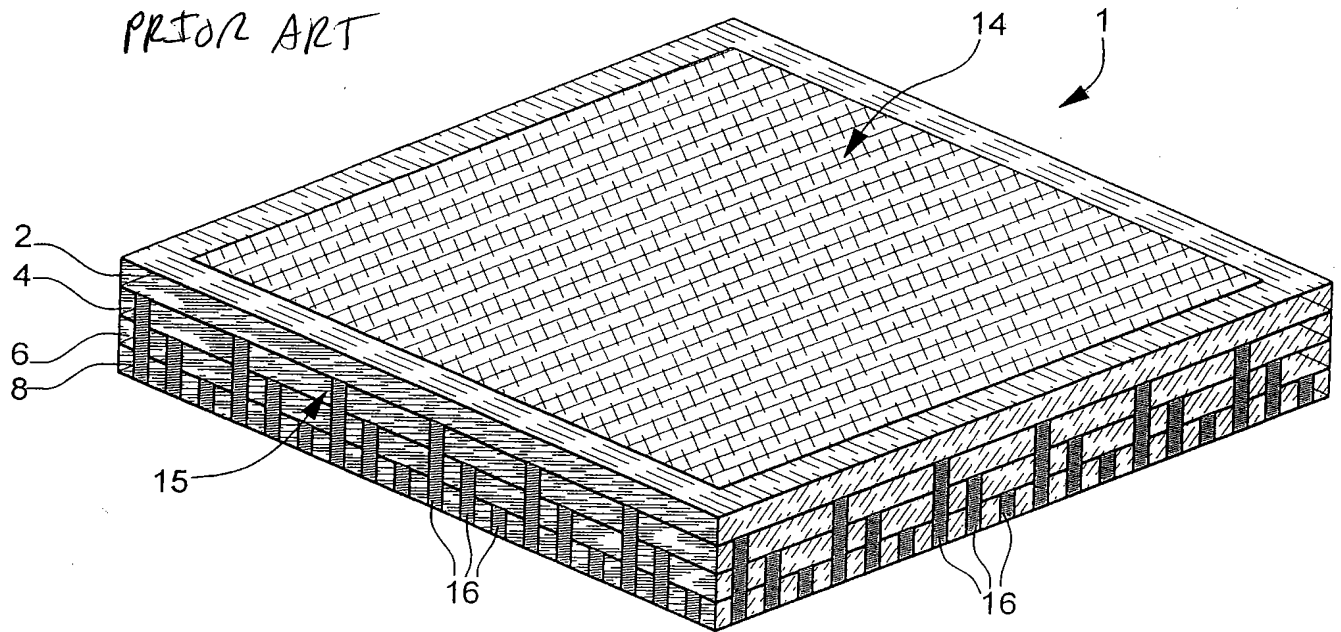
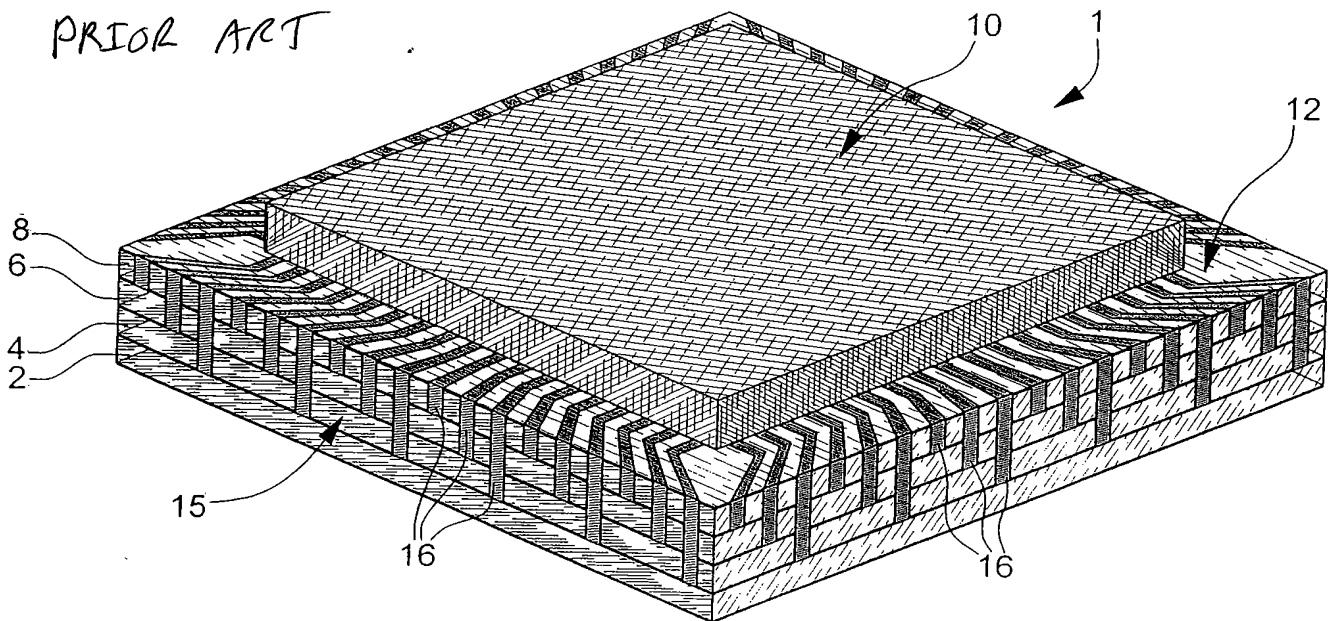


Fig. 2

PRIOR ART



Annotated Sheet

Fig. 3

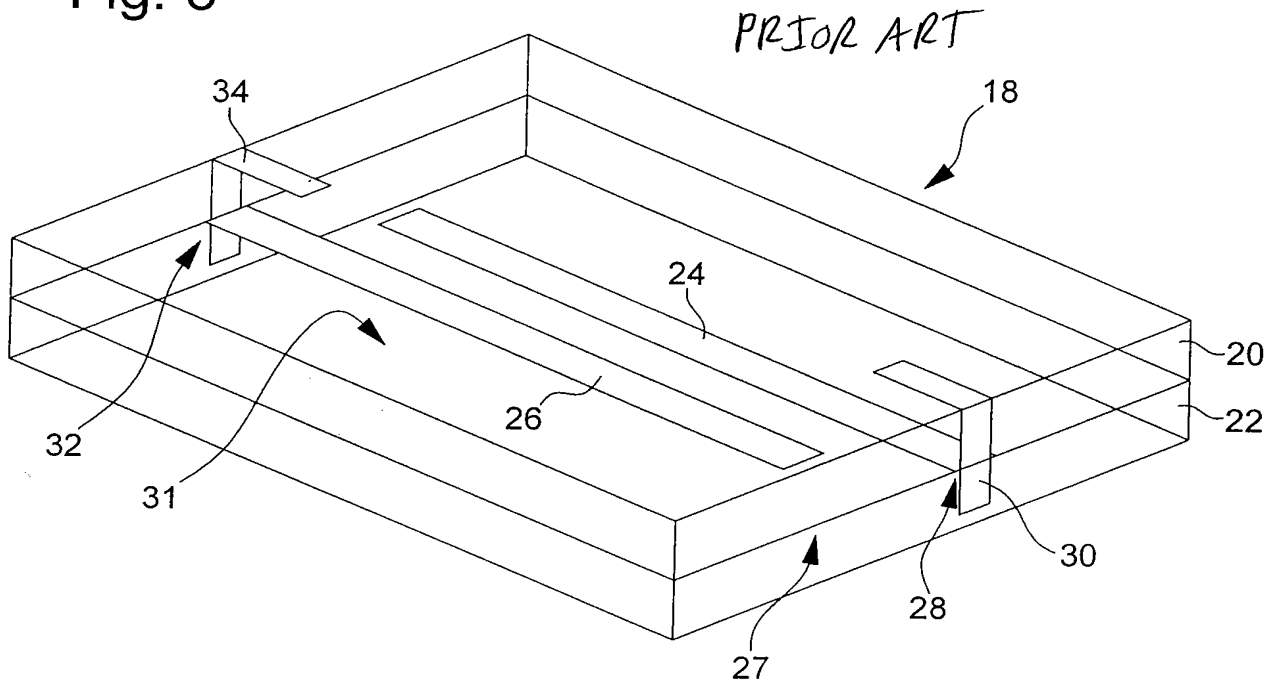


Fig. 13

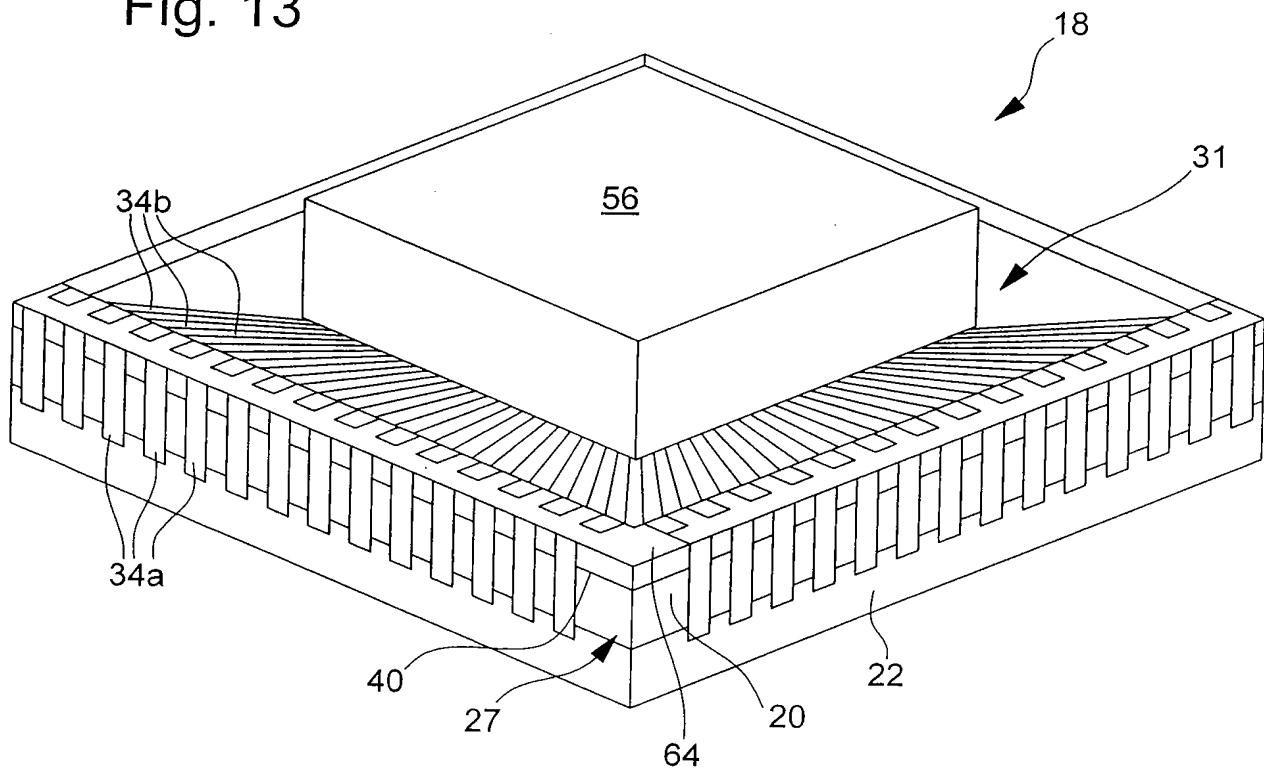


Fig. 4

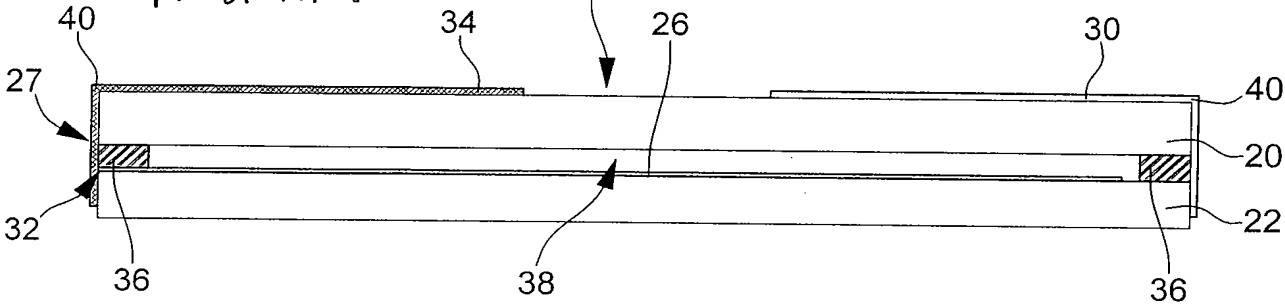


Fig. 5

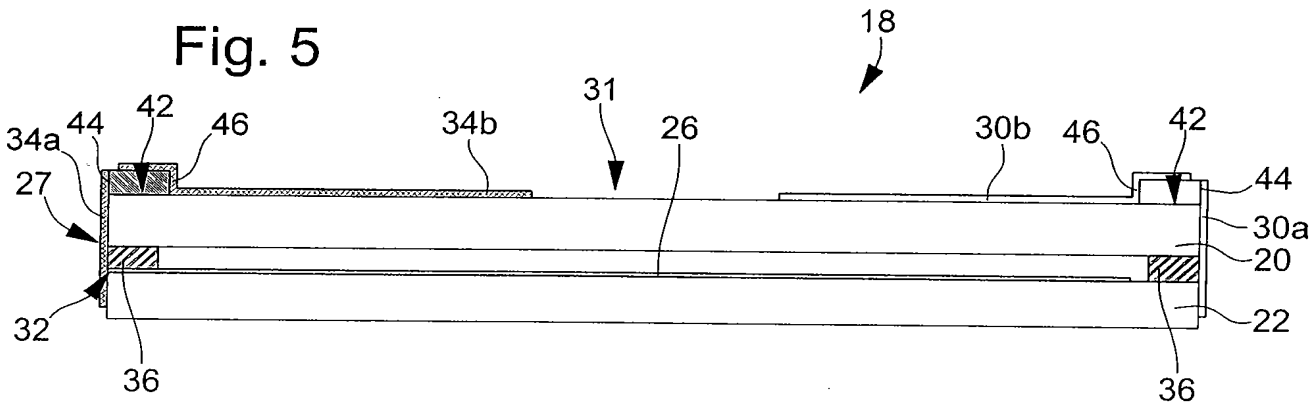


Fig. 6

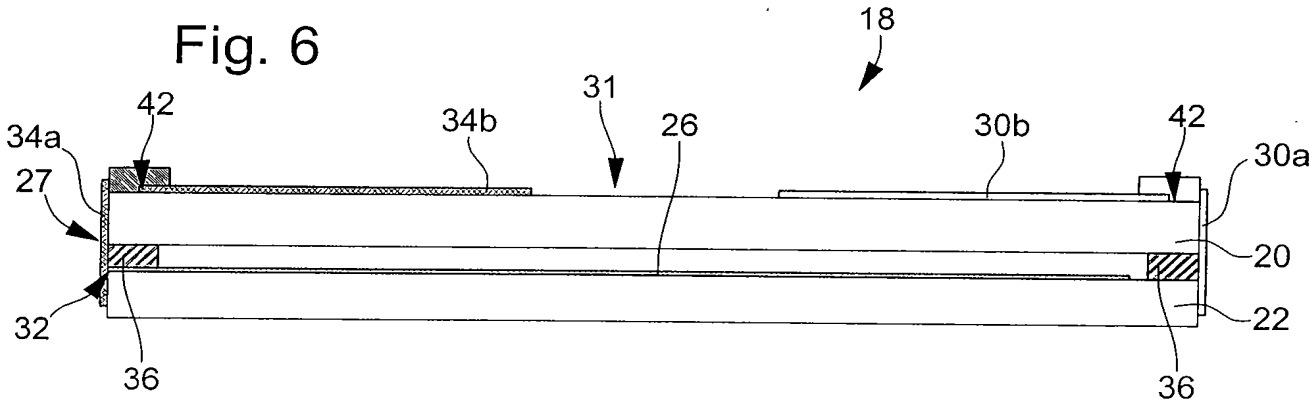


Fig. 7

